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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,351	02/10/2004	Warren M. Farnworth	6105US (03-0885.00/US)	3156
24247	7590	05/02/2007		
TRASK BRITT P.O. BOX 2550 SALT LAKE CITY, UT 84110			EXAMINER KOCH, GEORGE R	
			ART UNIT 1734	PAPER NUMBER
			MAIL DATE 05/02/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/775,351

Applicant(s)

FARNWORTH, WARREN M.

Examiner

George R. Koch III

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/21/2007 has been entered.

Claim Rejections - 35 USC § 102

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-3 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Takamori (US 6,319,317 B1).

Takamori discloses system for selectively depositing a material on a previously formed workpiece, comprising a platform (Figure 4, item 52) for supporting the workpiece during a deposition process, a sensing system (Figure 4, item 105) for measuring an upper surface of the workpiece and a surface level of a material deposited on the upper surface of the workpiece until the surface level of the material is

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directly measured to be corresponds to a specific thickness of the material (see, for example, column 12, lines 50-63); and a deposition system (item 86) for depositing the material on the workpiece to the specific thickness as monitored by the sensing system (see column 11, lines 53-58, and column 13, lines 42-53). The sensor measures the "spreading state" and therefore is a continuous measurement system. The apparatus can operate on the claimed die and claimed surfaces. This measurement is considered to be a direct measurement in the context of applicant's *direct* measurement, which is measuring the surface data of the substrate and dispense by a transmitter and receiver (as described in applicant's own specification 0042). Since Takamori is a sensor with a transmitter and receiver, and applicant's sensor is a transmitter and receiver, it anticipates the claim.

This sensing system for measuring an upper surface is consider capable of measuring and upper surface *over a semiconductor die including the upper sufarces and including a previous material previously deposited thereon*. This apparatus in Takamori is considered *capable* of coating any type of substrate, including the claimed *semiconductor die including a previous material previously deposited thereon*.

As to claim 2, Takamori discloses that the deposition system is a spin-coating deposition system (see Figure 2, and especially claim 1, line 2, which discloses that the apparatus including "means for rotating a substrate").

As to claim 3, Takamori discloses that the sensing system includes a sensor (item 105) for both measuring the upper surface of the workpiece (prior to deposition)

and for monitoring the surface level of the material deposited on the upper surface of the workpiece (during deposition). Takamori discloses measurement of the "spreading state" of the dispensed solution, which is a measurement of the before, during and after of the thickness or lack of it.

As to claim 8, Takamori discloses coating a semiconductor wafer (recited, for example, at column 1, line 10-11). Takamori is specifically directed to coating a semiconductor wafer with a resist film.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1-3 and 8 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Takamori (US 6,319,317 B1) and Subramanian (US 6,270,579)

Takamori discloses system for selectively depositing a material on a previously formed workpiece, comprising a platform (Figure 4, item 52) for supporting the workpiece during a deposition process, a sensing system (Figure 4, item 105) for measuring an upper surface of the workpiece and a surface level of a material deposited on the upper surface of the workpiece until the surface level of the material is directly measured to be corresponds to a specific thickness of the material (see, for example, column 12, lines 50-63); and a deposition system (item 86) for depositing the material on the workpiece to the specific thickness as monitored by the sensing system

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(see column 11, lines 53-58, and column 13, lines 42-53). The sensor measures the "spreading state" and therefore is a continuous measurement system. The apparatus can operate on the claimed die and claimed surfaces. This measurement is considered to be a direct measurement in the context of applicant's *direct* measurement, which is measuring the surface data of the substrate and dispense by a transmitter and receiver (as described in applicant's own specification 0042). Since Takamori is a sensor with a transmitter and receiver, and applicant's sensor is a transmitter and receiver, it anticipates the claim.

This sensing system for measuring an upper surface is consider capable of measuring and upper surface *over a semiconductor die including the upper sufarces and including a previous material previously deposited thereon*. This apparatus in Takamori is considered *capable* of coating any type of substrate, including the claimed *semiconductor die including a previous material previously deposited thereon*.

It can be argued that Takamori does not go as far as applicant does in defining the sensor techniques, especially with respect to how the sensor measures the thickness. However, Subramanian discloses further details of a sensor that monitors the surface and spreading state of a dispense. The sensor includes a transmitter (item 68) driven by light driver 66, which is directed towards the substrate surface and generates thickness uniformity data which is received by receiver 70 which feeds into measurement system 72 (see column 6, lines 31-59). This sensor directly measures a surface level of the material being deposited on the upper surface until the surface level of the material is directly measured to be a specific thickness of the material (as shown

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in step 210 of Figure 7, and see column 9, lines 30-35, which recites that “the processor 64 compares the measured thickness uniformity with the desired thickness uniformity, and determines whether or not the proper thickness uniformity has been achieved”). One in the art would appreciate that these techniques would further enable the specification of

As to claim 2, Takamori discloses that the deposition system is a spin-coating deposition system (see Figure 2, and especially claim 1, line 2, which discloses that the apparatus including “means for rotating a substrate”).

As to claim 3, Takamori discloses that the sensing system includes a sensor (item 105) for both measuring the upper surface of the workpiece (prior to deposition) and for monitoring the surface level of the material deposited on the upper surface of the workpiece (during deposition). Takamori discloses measurement of the “spreading state” of the dispensed solution, which is a measurement of the before, during and after of the thickness or lack of it.

As to claim 8, Takamori discloses coating a semiconductor wafer (recited, for example, at column 1, line 10-11). Takamori is specifically directed to coating a semiconductor wafer with a resist film.

6. Claim 4 rejected under 35 U.S.C. 103(a) as being unpatentable over Takamori OR Takamori and Subramanian as applied to claims 1-3 and 8 above, and further in view of Whitman (US 6,642,155).

As to claim 4, Takamori discloses measuring the upper surface of the workpiece and the surface level of the deposited material (see rejection of claim 3 above), but does not disclose using separate sensors for each function.

However, Whitman discloses that it is known in measuring the thickness during spin coating operations to utilize multiple sensors. Whitman uses to the multiple sensors to track coated and uncoated areas in order to properly coordinate the coating operation (as described in column 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such sensors in order to achieve coordination of the coating operation.

Response to Arguments

7. Applicant's arguments with respect to claims 1-4 and have been considered but are unpersuasive. Takamori is considered to be directly measuring, which is considered to be an intended use step that Takamori is considered capable of performing. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

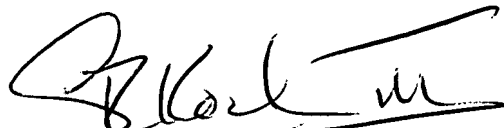
8. Additionally, Subramanian has been applied to show that the particular sensor system as described in applicant's specification is known.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-866-377-8642 and giving the operator the above TDD number. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Fiorilla can be reached on (571) 272-1187. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



George R. Koch III
Primary Examiner
Art Unit 1734

GRK
4/27/2007